Implementation of Korean Syllable Structures in the Typed Feature Structure Formalism*

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Lee, Yong-hun & Park, Ye-seul. 2011. Implementation of Korean Syllable Structures in the Typed Feature Structure Formalism. *The Journal of Studies in Language* 27.1, 183-202. It has been known that the syllable structures in Korean are different from those in English. The goal of this paper is to provide computational implementations for Korean syllable structures in the typed feature structure formalism. The system that we adopted in this paper is the Linguistic Knowledge Building system. We first implemented the type hierarchies and AVMs for segment and suprasegment. The types consonant and vowel were included under the type segment, and the various different types were included under the type suprasegment for syllable structures. Then, we provided the implementational rules for syllable structures. Unlike English syllabification, it has been known that onset and nucleus form a unit in Korean, which is called core. Accordingly, we provided the rules for onset, nucleus, and codas; then, the rules for core and syllable were provided to combine segments into syllable structures. This paper also employed the type of to solve the ambiguity problems. (Chungnam National University & Hannam University)

Key word: syllable structure, Korean, typed feature formalism, LKB, implementation

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1. Introduction

Syllable structures play important roles in phonology in that (i) it is a suprasegmental feature and (ii) many phonological phenomena such as assimilation occur based on the syllable structures in the language.

Since Bird & Klein (1994), there have been many trials to implement phonological processes within the typed feature structure formalism. Most of them have been conducted within the framework of Head-driven Phrase Structure Grammar (HPKG; Pollard & Sag, 1994; Sag & Wasow, 1999; Sag et al. 2003).

The goal of this paper is to provide computational implementations for Korean syllable structures within the typed feature structure formalism.\textsuperscript{1} The implementational system that we adopted in this paper is the Linguistic Knowledge Building (LKB) system (Copestake, 2002). In this system, we first implemented the type hierarchies for the two types segment and suprasegment. The types consonant and vowel were included under the type segment. Various different types were included under the type suprasegment for syllable structures. Then, we provided implementational rules for syllable structures.

It has been known that the syllable structures in Korean are different from those in English. Unlike English syllable structures, it has been known that onset and nucleus form a core, and core and coda form a syllable in Korean. We first provided the implementational rules for onset, nucleus, and coda first; and then we provided rules for core and syllable. Finally, we used the type phon-word in which all the syllables were combined within a phonological word. We also employed the type rf in order to solve the ambiguity problems during the parsing processes.

\textsuperscript{1} One important thing that we have to point out here is that this paper is independently developed from the Korean Resource Grammar (KRG; Kim and Yang 2003 (KRG1), Song et al. 2010 (KRG2)) or the Korean Type-inherited Combinatory Categorial Grammar (Korean TCCG: Lee, 2010). Therefore, the goal of this paper is not to solve the phonological/morphological problems that those frameworks have raised. Here, we make it clear that this paper is originated from the purely phonological point of view, though this paper presupposes the actual computational implementation of Korean syllable structures.